

ABSTRACT OF THE DISCLOSURE

A substrate whereon a film to be etched is held on a rotating stage. Ultraviolet light having a wavelength of 200 nm or shorter
5 is radiated from first lamps to the film in air, thereby removing organic coatings formed on a surface of the film and making the surface of the film hydrophilic. A chemical solution is coated on the hydrophilic film while rotating the substrate. Ultraviolet light having a wavelength longer than 200 nm is radiated from second lamps
10 to the film through the chemical solution.